

TITLE: HOMOGENIZED LEAF CURING: FACTORS AFFECTING LEAF AND SMOKE CHEMISTRY

AUTHORS: W. G. Woodlief, J. J. Lam, and D. E. Blume*

AFFILIATION: USDA, Tobacco Research Laboratory, Oxford, NC 27565

ABSTRACT: Homogenized leaf cured (HLC) products were prepared from both immature and mature tobacco and compared to a conventional flue-cured reference. A portion of the HLC material was fractionated into constituent parts including fibers, proteinaceous precipitates and deproteinized juices. Efforts were directed toward optimizing the removal of both the insoluble 'green' chloroplastic and soluble 'white' protein fractions. Each fraction plus the recombined HLC samples were analyzed for leaf and pyrolyzate constituents. Even though the removal of heat precipitable protein resulted in the reduction of many leaf constituents, 50% of the total nitrogen remained with the fibers. Solanesol seemed to be concentrated in the 'green' chloroplast protein fraction in immature tobacco and became associated with the fiber fraction as the tobacco matured. Analysis of the pyrolyzate constituents showed higher polycyclic aromatic hydrocarbons (PAH) in the HLC deproteinized product than the HLC control. The collective data suggests that PAH precursors are concentrated in the fiber and deproteinized juice fractions.

REVIEW: Homogenized leaf curing (HLC) was described as a fractionation process consisting of grinding tobacco leaves into slurry, incubating to obtain homogenized leaf cured control, and dehydrating twice to reduce slurry into proteinaceous precipitates and deproteinized juices. The results from the processing of immature and mature tobacco showed a reduction of most chemical constituents contained in the tobacco. Of these, 50% of the nitrogen was found to still remain in the fiber. The data obtained from the investigation suggested that there are differences in chemical constituents in immature and mature HLC tobacco. Highlights of these results are given in the abstract.

-Reviewed by G. Patron

1000816872